

Claims

- [c1] An apparatus for harvesting plugs from bone tissue, the apparatus comprising: a tube having an inner bore running at least part-way therethrough for receiving a bone plug, the tube having (i) proximal and distal ends, with the distal end having a cutting edge coupled thereto for harvesting the bone plug from the bone tissue, and (ii) at least one recess that extends at least part way from an inner surface of the tube to an outer surface of the tube; and a tooth, coupled substantially at the distal end of the tube and extending towards the inner bore in a direction substantially orthogonal to the cutting edge, for cutting the bone in a direction substantially orthogonal to the cutting edge in order to extract the bone plug.
- [c2] An apparatus according to claim 1, further comprising a sheath that includes the cutting edge and the tooth, the sheath being mated to the tube and including one or more markings on an outer surface thereof, the one or more markings corresponding to an amount that the sheath is inserted into the bone tissue.
- [c3] An apparatus according to claim 1, wherein the at least one recess runs toward the proximal end of the tube and

begins a predetermined distance away from the distal end of the tube.

- [c4] An apparatus according to claim 3, wherein the recess comprises an aperture.
- [c5] An apparatus according to claim 1, wherein the tube includes a plurality of recesses that extend at least part way from an inner surface of the tube to an outer surface of the tube, each of which runs toward the proximal end of the tube and begins a predetermined distance away from the distal end of the tube.
- [c6] An apparatus according to claim 1, further comprising a handle attached to the proximal end of the tube for driving the tube and the tooth into the bone.
- [c7] An apparatus according to claim 1, wherein the bone plug comprises articular cartilage and underlying bone tissue.
- [c8] An apparatus for implanting a bone plug into a pre-formed hole in bone tissue, the apparatus comprising a tip, through which the bone plug is guided into the pre-formed hole, wherein at least a portion of the tip is at least translucent.
- [c9] An apparatus according the claim 8, wherein at least a

portion of the tip is any of translucent and clear.

- [c10] An apparatus according to claim 9, wherein the tip comprises a surgical grade plastic.
- [c11] An apparatus according to claim 10, further comprising a push rod which is moveable relative to the tip, and which is used to push the bone plug through the tip and into the pre-formed hole.
- [c12] An apparatus according to claim 11, further comprising a tube having an inner bore which holds the bone plug, the tube being coupled to the tip such that the inner bore of the tube is substantially aligned to an inner bore of the tip; wherein the push rod is slidably disposed within the inner bore of the tube so as to force the bone plug from the inner bore of the tube, through the tip, and into the pre-formed hole.
- [c13] An apparatus according to claim 12, wherein the tube is slidably coupled to the tip.
- [c14] An apparatus for implanting bone plugs into a pre-formed hole in bone tissue, the apparatus comprising: a tube having an inner bore for storing an extracted bone plug; a push rod, having a diameter less than or equal to a diameter of the inner bore of the tube, for contacting the bone plug in the inner bore of the tube and for forc-

ing the bone plug out of the inner bore of the tube; and a tip, which is attached to a distal end of the tube, for receiving the bone plug and for delivering the bone plug to the preformed hole, wherein at least a portion of the tip is any of translucent, transparent and clear so as to permit visualization of the bone plug as it is being implanted in the pre-formed hole.

- [c15] An apparatus according to claim 14, wherein the tip is rotatable relative to the tube.
- [c16] An apparatus according to claim 14, wherein the push rod includes a head having a diameter which is greater than a diameter of the inner bore of the tube.
- [c17] An apparatus according to claim 14, wherein the inner bore of the tube runs at least part-way therethrough for storing the bone plug, and the tube has at least one recess that extends at least part way from an inner surface of the tube to an outer surface of the tube.
- [c18] An apparatus according to claim 17, wherein the recess comprises an aperture.
- [c19] An apparatus according to claim 14, wherein the bone plug comprises articular cartilage and underlying bone tissue.

- [c20] A method of transplanting a bone plug from a donor site to a recipient site, the method comprising the steps of: harvesting the bone plug from the donor site; attaching a tip at least a portion of which is at least translucent over a tube containing the bone plug; placing the tip substantially over a pre-formed hole in the recipient site; forcing the bone plug from the tube, through the transparent tip, and into the pre-formed hole.
- [c21] A method according to claim 20, further comprising the step of rotating the tip relative to the tube.
- [c22] A method according to claim 20, wherein the tube comprises an inner bore, a cutting edge coupled to the tube, and a tooth coupled to the cutting edge, the tooth extending towards the inner bore in a direction substantially orthogonal to the cutting edge; and wherein the harvesting step comprises the steps of: driving the tube into the donor site, cutting-edge-first; rotating at least the cutting edge so that the tooth cuts through the bone so as to separate at least part of a bottom surface of the bone plug from the donor site; and removing the tube containing the bone plug from the donor site.
- [c23] A method according to claim 22, further comprising the step of determining an amount that the driving step has driven the tube into the first area of the bone by reading

one or more markings disposed relative to the cutting edge.

- [c24] A method according to claim 20, wherein the bone plug comprises articular cartilage and underlying bone tissue.
- [c25] A method according to claim 20, further comprising, before the harvesting step, the step of forming the pre-formed hole using at least the tip.
- [c26] A method according to claim 25, wherein the forming step forms the pre-formed hole by placing the tube from within the bone plug delivery device over the recipient site, passing a drill bit through the tube, and drilling through bone tissue at the recipient site via the tube.
- [c27] A method according to claim 26, further comprising the step of adjusting an angle of the drill bit based on a view of the drill bit as the drill bit passes through the tip.